REMARKS

In the office action, the examiner rejected Claims 1-8 and 11-18 under 35 U.S.C. 103(a) as being obvious over the technology disclosed by Yokota et al. (U.S. Patent No. 6,640,185). The examiner rejected Claims 9, 10, 19 and 20 under 35 U.S.C. 103(a) as being obvious over the technologies disclosed by Yokota et al. (U.S. Patent No. 6,640,185) and Adachi (U.S. Patent No. 6,662,101). Further, the examiner rejected Claims 1-8 and 11-18 under 35 U.S.C. 103(a) as being obvious over the technologies disclosed by Yokota et al. (U.S. Patent No. 6,640,185) and Cochlovius et al. (U.S. Application Publication No. 2003/0120423). Accordingly, the applicant has amended Claims 1 and 11 to more clearly distinguish the present invention from the technologies disclosed by the cited references.

As recited in Claims 1 and 11 concurrently amended, the essential features of the present invention reside in the fact that the navigation system (1) detects the condition where the blank scroll will arise when the screen is further scrolled by evaluating the map data to be displayed, (2) stops scrolling the screen even if the scroll signal is provided by the user and reads the map data ahead in the scroll direction to find any visible object when the blank scroll condition is detected, (3) evaluates the shape point that defines a shape of the visible object to determine whether any part of the visible object should come within a display range of the screen when the screen is further scrolled in the scroll

direction, and (4) immediately displays the location which shows the visible object without showing a blank screen when any part of the visible object should come within the display range.

The cited Yokota et al. reference discloses a display method and apparatus for navigation system which enables a user to operate the navigation system with use of a reduced number of control keys without adversely affecting the safe driving of the vehicle. The feature of the invention disclosed by the cited Yokota et al. reference resides in the fact that switching between the map zoom screen and the map screen is performed by operating only the selection key, and adjustments of the zoom scale in the map zoom screen and the scroll of the map image are conducted by operating only the scroll means. Because of such a special arrangement of the key functions, the number of keys required for operating the navigation system is substantially reduced.

The cited Cochlovius et al. references discloses a technique for selecting a destination from a map image displayed on a screen to calculate a route to the destination. This is to facilitate the operation of an in-vehicle navigation system and to shorten the time required for the otherwise time-consuming entering of the destination by crosshairs by reducing the operating steps required, a general map and an enlarged portion of the general map are displayed simultaneously on a screen. A navigation computer calculates the routes. Map data from general maps and detail maps are stored in a memory. A main computer calculates the portion

selectable for example by crosshairs and shown on an enlarged scale, from the data stored in the memory. The general map and the enlarged portion can be moved synchronously with one another on the screen by a graphic control unit.

The features (1) and (2) noted above have been modified from those amended and discussed in the previous responses to the office actions. With respect to the feature (1), the navigation system detects the condition where the blank scroll will arise when the screen is further scrolled by evaluating the map data to be displayed. The under lined portion is added in the current amendment which is supported by the original disclosure of the instant application, for example, from page 11, line 25 to page 12, line 2, which reads as follows:

> Such information may be temporarily stored in the buffer memory 48 for data processing. When receiving the scroll signals, the scroll operation controller 47 evaluates the map data to be displayed on the monitor 50 to check whether the blank scroll situation will be created if the scroll operation is continued in the scroll direction indicated by the scroll signals. If such a blank scroll condition is found, the scroll operation controller 47 evaluates the map data in the scroll direction to search any visible object. If any part of the visible object should be within the display range 21 in the scroll direction, the scroll operation controller 47 causes the monitor to immediately display the location where the visible object exists.

As defined in Claims 1 and 11, the blank scroll is a situation of the screen in which the screen will not show any visible object thereon when the screen is scrolled in the specified direction. In other words, the feature (1) defines that the navigation system evaluates the map data to detect will arise if the screen is

further scrolled. Namely, the actions defined by the feature (1) are taken before the actual blank scroll arises.

The examiner stated in the office action that this feature is disclosed by the cited Yokota et al. reference at fig. 12B and the background section of the instant application. The applicant disagrees with the examiner because the cited Yokota et al. reference and the admitted prior art merely show the situation where the blank scroll is already occurred. For example, Figures 3 and 4 of the admitted prior art show the situation where the blank scroll has been created because no measure for avoiding the blank scroll is employed. Fig. 12B of the cited Yokota et al. reference shows the situation where the blank screen is displayed because the cursor is moved to the location where there is no roads or objects to be displayed. Similarly, Figs. 2-4 of the cited Cochlovius et al. reference shows the situation where the blank screen is displayed because the cursor is moved to the location where there is no roads or objects to be displayed.

The present invention is to avoid such a blank scroll or blank screen by detecting the blank scroll condition before an actual blank scroll arises. The admitted prior art of Figures 3 and 4 shows the situation where the blank scroll is already occurred but does not show any idea of detecting the blank scroll condition before an actual blank scroll arises. The cited Yokota et al. reference shows a scroll operation of the screen, however, it is completely silent about the detection of blank scroll condition

before being happened or avoiding the blank screen even if the screen is further scrolled in the specified scroll direction. The cited Cochlovius et al. reference shows a scroll operation of the screen, however, it is completely silent about the detection of blank scroll condition before it is happened or avoiding the blank screen when the screen is further scrolled in the specified direction. Therefore, the essential feature (1) of the present invention noted above is not shown or suggested by the admitted prior art, the cited Yokota et al. reference, or the cited Cochlovius et al. reference.

With respect to the feature (2) noted above, the navigation system, when the blank scroll condition is detected, stops scrolling the screen even if the scroll signal is provided by the user and reads the map data ahead in the scroll direction to find any visible object. The under lined portion is added in the current amendment which is supported by the original disclosure of the instant application, for example, at page 14, lines 22-34, which reads as follows:

> In the navigation system of the present invention, however, if such a blank scroll condition is detected, the navigation system immediately stops the scrolling even if the scroll signals are received from the input device and searches any visible object in the scroll direction by reading the map data ahead. The process to determine whether a particular object should come in the display range is conducted by evaluating the angles of the point of the object as described below. If a visible object is detected, the navigation system directly moves to the location where the visible object exists in the scroll direction. Thus, the user does not have to see the blank screen when scrolling the screen.

As mentioned above, the purpose of the present invention is to avoid the screen to display the blank scroll. Thus, the feature (2) defines that, if the blank scroll condition is detected, the navigation system stops the scroll operation even if the scroll signal is provided by the user. The navigation system reads the map data ahead in the scroll direction to find any visible object so that the screen display can jump to the location where the visible object exists. Namely, the actions defined by the feature (2) are also taken place before the actual blank scroll arises.

The examiner stated in the office action that this feature is disclosed by the cited Yokota et al. reference at column 4, lines 1-28, etc. The applicant disagrees with the examiner because the cited Yokota et al. reference merely shows the situation where the blank scroll is already occurred. For example, there is no showing in the cited Yokota et al. reference that the navigation system stops the scrolling operation even though the scroll signal is provided by the user if the blank scroll condition is detected. Similarly, there is no showing in the cited Cochlovius et al. reference that the navigation system stops the scrolling operation even though the scroll signal is provided by the user. Fig. 12B of the cited Yokota et al. reference merely shows the situation where the blank screen is displayed because the cursor is moved to the location where there is no roads or objects to be displayed, and it is completely silent about stop scrolling the screen even though the scroll signal is supplied thereto. Similarly, Figs. 2-4 of the

cited Cochlovius et al. reference merely show the situation where the blank screen is displayed because the cursor is moved to the location where there is no roads or objects to be displayed, and it is completely silent about stop scrolling the screen even though the scroll signal is supplied.

Although the cited Yokota et al. reference shows a scroll operation of the screen, it is completely silent about the blank scroll or avoiding the blank scroll by reading the map data ahead in the scroll direction. Further, the cited Yokota et al. reference does not show any idea of finding any visible object in the scroll direction when the blank scroll condition is detected. Similarly, although the cited Cochlovius et al. reference shows a scroll operation of the screen, it is completely silent about the blank scroll or avoiding the blank scroll by reading the map data ahead in the scroll direction. Further, the cited Cochlovius et al. reference does not show any idea of finding any visible object in the scroll direction when the blank scroll condition is detected. It should be noted that an operation to find a visible object by "zooming" the screen shown in the cited Yokota et al. reference or the cited Cochlovius et al. reference is completely different from an operation to find a visible object in the scroll direction specified by the user since the screen zooming is to change the scale factor of the map image on the screen rather than to change the location with the same scale factor. Therefore, the essential feature (2) of the present invention noted above is not

shown or suggested by the cited Yokota et al. reference or the cited Cochlovius et al. reference.

With respect to the feature (3) noted above, the present invention evaluates the shape point that defines a shape of the visible object to determine whether any part of the visible object should come within a display range of the screen when the screen is further scrolled. As discussed above, an example of specific ways for evaluating the shape point is described with reference to Figures 7-10. Although the cited Yokota et al. reference or the cited Cochlovius et al. reference shows a scroll operation of the screen, it is completely silent about the blank scroll condition or avoiding the blank screen. Claims 1 and 11 recite the shape point as a point which defines the shape of the visible object. Although the shape point itself is publicly known, the way of evaluating the shape point with respect to the scroll operation in the present invention is not in the public domain.

It is apparent that the cited Yokota et al. reference or the cited Cochlovius et al. reference is completely silent about the shape point of the visible object in terms of finding whether the visible object will be within the display range in the scroll direction. Although the examiner indicated column numbers and line numbers, the descriptions in the specified sections of the cited Yokota et al. reference or the cited Cochlovius et al. reference do not have any relationship with the blank scroll, blank scroll condition, avoiding the blank scroll, searches for the visible

object, or the evaluation of the shape points of the visible object. Therefore, the essential feature (3) of the present invention noted above is not shown or suggested by the cited Yokota et al. reference or the cited Cochlovius et al. reference.

With respect to the feature (4) noted above, the present invention immediately displays the location of the visible object without showing the blank screen when any part of the visible object should come within the display range. It appears that the examiner equates this feature with the map zooming operation disclosed by the cited Yokota et al. reference or the cited Cochlovius et al. reference. It should be noted that an operation to find a visible object by "zooming" the screen shown in the cited Yokota et al. reference or the cited Cochlovius et al. reference is completely different from an operation to find a visible object in the scroll direction specified by the user since the screen zooming is to change the scale factor of the map image on the screen rather than to change the location with the same scale factor. Therefore, the essential feature (4) of the present invention noted above is not shown or suggested by the cited Yokota et al. reference or the cited Cochlovius et al. reference.

Since none of the essential features of the present invention are shown or suggested by the cited Yokota el al. reference or the cited Cochlovius et al. reference, the applicant believes that the rejection under 35 U.S.C. 103(a) is no longer applicable to the present invention taken singly or in combination.

In the office action, the examiner rejected Claims 9, 10, 19 and 20 under 35 U.S.C. 103(a) as being unpatentable over Yokota et al. (U.S. Patent No. 6,640,185) in view of Adachi (U.S. Patent No. 6,662,101). Claims 9, 10, 19 and 20 include all of the limitations of the base claim, Claim 1 or 11. As discussed above, because the cited Yokota et al. reference or the cited Cochlovius et al. reference does not show or suggest any of the essential features of the present invention defined in Claim 1 or 11, the invention defined by Claims 9, 10, 19 and 20 is not obvious over the cited references taken singly or in combination.

Under the circumstances, the applicant believes that the present application is in the condition for allowance, and the applicant respectfully requests that the present application be allowed and passed to issue.

Respectfully submitted,

MURAMATSU & ASSOCIATES

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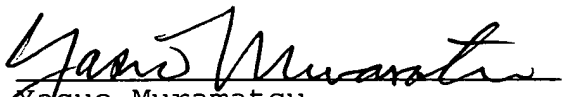
By: 

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